# A Basic Study on a Method for Detecting relapse of Depression Using Life-Log Data

Depression, a psychiatric disorder characterized by persistent feeling of sadness and loss of interest, is known to have a high recurrence rate, and early detection of the relapse is highly demanded to prevent progression of the disorder and lead to better prognosis. To meet the needs by means of easy and handy measurement system, we examined a feasibility to predict relapse of depression based on life-log data that can be collected by smart devise in this study.

To the end, we conducted a secondary analysis of a data set collected from 87 patients who had suffered from depression but been in the remission stage at the study onset. We first ranked various types of physical activity in terms of the correlation with the relapse state calculated by the event-triggered averages. The rank was used for feature selection of the inputs, which were fed into logistic regression models to perform binary classification discriminating whether or not a person of interest was in the relapse state. Finally, we evaluated the generalization performance of the prediction model based on the leave-one-subject-out cross validation to discuss the feasibility of our original goal. The results were not supportive: The prediction performance was not so significantly good as the chance level for any model we considered here. By discussing possible bottlenecks causing the negative results and future direction to solve them, we conclude this thesis.